

Amendments to the Specification:

Please replace paragraph [0023] with the following paragraph:

[0023] Referring to FIG. 1, a hybrid vehicle 40 includes an engine 11, a planetary gear mechanism 12, a running/regenerative braking motor 13, a start/power generation motor 14, a reduction gear 15, a differential arrangement 16, drive wheels 17, a first inverter 21, a second inverter 22, a battery 23, a hybrid controller 31 and an engine controller 32.

Please replace paragraphs [0025]-[0027] with the following three paragraphs:

[0025] Referring to FIG. 1A, the planetary gear mechanism 12 includes a sun gear 12a₁ which is a first rotating element connected to start/power generation motor 14, ring gear 12b₁ which is a third rotating element connected to driving wheels 17₁ and a plurality of pinion gears 12c₁ which are engaged in the outer circumference of sun gear 12a and the inner circumference of ring gear 12b, ~~which and~~ are concentrically placed. Planetary gear mechanism 12 rotatably supports the plurality of pinion gears 12c and has carrier 16d₁ which is a second rotating element connected to engine 11.

[0026] The running/regenerative braking motor 13 is placed in the driving force transmitting path ~~which is located among~~ formed by ring gear 12b, reduction gear 15 and differential arrangement 16. According to the present embodiment, running/regenerative braking motor 13 is serially connected to the input axes of reduction gear 15 and differential arrangement 16. That is, ring gear 12b₁ which is the gear element connected to running/regenerative braking motor 13₁ is connected to the driving force transmitting path connected to driving wheels 17. When running/regenerative braking motor 13 and start/power generation motor 14 are driven to increase rotation, that is, when a positive torque is output during the positive rotation, or when a negative torque is output during the negative rotation, they function as motors and consume electric power from the battery through an inverter. Also, when running/regenerative braking motor 13 and start/power generation motor 14 are driven to decrease rotation, that is, when a negative torque is output during the positive rotation, or when a positive torque is output during the negative rotation, they function as power generating machines and charge the battery through an inverter.

[0027] The driving force needed to run the vehicle is mainly outputted by engine 11 and motor 42 13. Typically, in the idling area, which does not have good engine efficiency, in the low-speed area and in the moderate to high speed and low loaded area, the vehicle is driven by motor 13 where only motor 42 13 is the source for driving the vehicle. When the demanded driving force of the vehicle cannot be obtained only by the output of engine 11, electric power is supplied from battery 24 to drive motor 42 13 and the generated motor torque is added (assisted) to the engine torque. Motor 42 13 collects the speed reduction energy by conducting the regenerative driving when the speed of the vehicle is reduced and can charge the battery through an inverter or can be driven as a power generating machine when the vehicle is running by the engine 11.

Please replace paragraphs [0029] and [0030] with the following two paragraphs:

[0029] FIGS. 1B and 1C are collinear diagrams indicating the relationship among the numbers of rotations of each element of planetary gear mechanism 12. According to the collinear diagrams, sun gear 12a and ring gear 12b, which are the elements of both sides, are connected to start/power generation motor 14 and running/regenerative braking motor 13 respectively and carrier 46d 12d, which is the element of the inside, is connected to engine 11. Number of rotations N_r of the ring gear, which corresponds to the number of rotations of the input of differential arrangement 16, changes in accordance with the shift transmission ratio of the speed of the vehicle, reduction gear 15 and differential arrangement 16. In a situation wherein the shift transmission ratio of reduction gear 15 and differential arrangement 16 is maintained at a minimum such as in the case where the vehicle is running at a high speed, the number of rotations N_r of the ring gear changes based on the speed of the vehicle. Therefore, as shown in the collinear diagram of FIG. 1B, by adjusting and controlling the number of rotations of sun gear 12a (number of rotations of start/power generation motor 14), it is possible to change or control the number of rotations of carrier 46d 12d, that is, the number of rotations of the engine 11, with a high degree of accuracy. When the two gears of planetary gear mechanism 12 are fixed, $N_r = N_s = N_c$, and they are driven at a gear ratio of 1. Therefore, when ring gear 12b and carrier 46d 12d are attached by lock-up

clutch 28, three rotating elements ~~16a, 16b and 16c~~ 12a, 12b and 12d, which constitute planetary gear mechanism 12, are integrally rotated.

[0030] The start/power generation motor 14 is connected to engine 11 through power the planetary gear mechanism 12. The start/power generation motor 14 cranks engine 11 when the engine is started. Furthermore, after the engine is started, start/power generation motor 14 generates electric power by using one part of the power of engine 11 that is distributed by the planetary gear mechanism 12. The start/power generation motor 14 is also an alternator such as, for example, a three-phase synchronized motor and three-phase induction motor.

Please replace paragraph [0032] with the following paragraph:

[0032] The first inverter 21 electrically connects running/regenerative braking motor 13 to battery 23. When the vehicle is running, first inverter 21 converts the direct current that is produced by battery 23 into an ~~alternate~~ alternating current and supplies this alternating current to running/regenerative braking motor 13. Furthermore, during breaking, first inverter 21 converts the regenerative ~~alternate~~ alternating current of running/regenerative braking motor 13 into a direct current, which is then used to charge battery 23. Here, when a direct current electric motor is used as running/regenerative braking motor 13, a DC/DC converter may be used as substitute for the inverter. Examples of suitable batteries 23 include various types of rechargeable batteries such as nickel hydride, lithium ion and lead acid, as well as a power capacitor such as an electric double layer capacitor.

Please replace paragraph [0034] with the following paragraph:

[0034] The hybrid controller 31 calculates the target driving force based on acceleration demand, which depends, for example, on the amount of pressure on the acceleration pedal. The acceleration demand is detected by an accelerator position sensor 41. Hybrid controller 31 controls running/regenerative braking motor 13 and start/power generation motor 14 through first inverter 21 and second inverter 22. Furthermore, hybrid controller 31 is connected to engine controller 32 by a CAN communication line and controls engine 11 through engine controller 32. Moreover, hybrid controller 31 is connected to the

battery 23 by a control line. Also, hybrid controller 31 includes ~~an~~ a SOC detecting means, which detects the state of charge (SOC) of battery 23. When the SOC is low, hybrid controller 31 initiates start/power generation motor 14 to start engine 11 and charges battery 23 with electric power, which is generated by the driving force of engine 11 at start/power generation motor 14.

Please replace paragraph [0037] with the following paragraph:

[0037] When acceleration demand is small, i.e., when the pressure on the accelerator pedal exerted by the driver is small, the shock caused by the engine start may be decreased by injecting fuel when a pressure ~~drop drop~~ is detected inside the induction system. In addition, the throttle valve 11a may optionally be closed. Alternatively, the cranking time may be extended instead of, or in addition to, injecting fuel. By doing so, it may be possible to decrease the shock at the time the engine starts and smooth the acceleration.

Please replace paragraph [0042] with the following paragraph:

[0042] In step S2, engine controller 32 determines whether or not the vehicle was previously started by the engine 11 (that is, whether or not this is the first time the vehicle has been started by the engine 11). If the vehicle was not previously started by the engine 11, engine controller 32 proceeds to step S3 ~~and, if,~~ if the vehicle was previously started by the engine 11, ~~it engine controller 32~~ proceeds to step S8.

Please replace paragraph [0045] with the following paragraph:

[0045] In step S7, engine controller 32 sets the gate opening of throttle valve 11a to a position referred to herein as gate opening TV01, which is set by target setting routine S4. In step S8, engine controller 32 ~~calculates~~ increments timer T. In step S9, engine controller 32 starts fuel injection. In step S10, engine controller 32 resets the gate opening of throttle valve 11a from TV01 to its normal position.

Please replace paragraph [0047] with the following paragraph:

[0047] FIG. 4 indicates target gate opening TV01 of the throttle valve versus

acceleration demand--the amount of pressure on the accelerator pedal[[.]] and/or the output of the acceleration sensor and the like. When the amount of pressure on the accelerator pedal APO is the predetermined value ~~AP0~~ AP01 or lower, the target gate opening TV01 of the throttle valve 11a is completely opened. In this manner, when the pressure on the accelerator pedal from the driver is small and the acceleration demand is small, the throttle valve 11a is completely opened. When acceleration demand is great, i.e., the pressure on the accelerator pedal from the driver is large, and the amount of pressure on the accelerator pedal exceeds the predetermined value AP01, target gate opening TV01 of the throttle valve 11a is set. The values in FIG. 4 are determined experimentally beforehand.

Please replace paragraph [0051] with the following paragraph:

[0051] FIG. 7 is a time chart illustrating the case where the amount of pressure exerted by the driver on the accelerator pedal is small (~~AP0~~ AP0 \leq AP01). Until time t 11, the amount of pressure on the accelerator pedal from the driver is small (FIG. 7(F)) and the vehicle runs only by running/regenerative braking motor 13 (FIGS. 7(E) and (G)).

Please replace paragraph [0054] with the following paragraph:

[0054] After timer T is re-set (step S3 of FIG. 2), the target value is set (step S4 of FIG. 2). Here, the amount of pressure on the accelerator pedal ~~AP0~~ AP0 is predetermined value AP01 or less and target gate opening TV01 of the throttle valve 11a is completely closed. Also, target delay time T1 is the smaller of target delay time Ta for the fuel injection, which is set based on the amount of pressure on the accelerator pedal, or target delay time Tb for the fuel injection, which is set based on the rate of the pressure on the accelerator pedal.

Please replace paragraph [0057] with the following paragraph:

[0057] FIG. 8 is a time chart indicating the case where the amount of pressure on the accelerator pedal is large (~~AP0~~ AP0 $>$ AP01). Until time t 21, the amount of pressure on the accelerator pedal exerted by the driver is small (FIG. 8(F)), and the vehicle runs only by running/regenerative braking motor 13 (FIGS. 8(E) and (G)).

Please replace paragraph [0059] with the following paragraph:

[0059] After timer T is re-set (step S3 of FIG. 2), the target value is set (step S4 of FIG. 2). Here, amount of pressure on the accelerator pedal AP0 APO is larger than predetermined value AP01 and target gate opening TV01 is determined based on FIG. 2. Also, target delay time T1 is the smaller of target delay time Ta for the fuel injection, which is set based on the amount of pressure on the accelerator pedal, or target delay time Tb for the fuel injection, which is set based on the rate of the pressure on the accelerator pedal.